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Abstract: Hairy root cultures produced by *Agrobacterium rhizogenes* Conn mediated transformation, have been widely accepted as an important experimental system for plant physiological and molecular research. It has also been found promising for producing useful secondary plant metabolites due to its many well known advantages as fast growth rate, high genetic stability, and regeneration ability. *Stevia rebaudiana* L. Bertoni is a herbaceous perennial plant of the Asteraceae family. It is a natural sweetener plant known as "Sweet Weed", "Sweet Leaf", "Sweet Herbs" and "Honey Leaf", which is estimated to be 300 times sweeter than cane sugar. The leaf extract of this plant has been used traditionally in the treatment of diabetes. This work compiled the in vitro hairy root induction on node and shoot tips of *S.rebaudiana* and their molecular characterisation through PCR using gene specific primers. To get aseptic explants micropropagation was carried out. Contamination free culture was established by treating shoot tip explants with 0.1% HgCl₂ for 5 minutes followed by their inoculation in MS medium supplemented with BAP 1.0 mg/l, AdSO₄ 50 mg/l and citric acid 1.0 mg/l. After 48 hour of incubation of *Agrobacterium rhizogenes* at 28°C in YEB broth (OD 0.6) supplemented with 50.0 mg/l rifampicin, bacterial pellets were obtained and resuspended in MS broth that further used for co-cultivation. For inducing hairy root, 48 hours co-culture was found to be best (Shweta Kumari, 2010) and inoculated into the MS medium devoid of any phytohormone. Molecular characterisation of hairy roots was done through PCR using rolC and aux1 gene specific primer. For this, genomic DNA from hairy root of shoot tips and node were isolated using standard CTAB method. On PCR, amplification of the specific gene was noted in the transformant at 487 bp for rolC and 815 bp for aux1 respectively. On the other hand, non transformant did not show any amplification corresponding to the gene specific primers.

Description: Genetic evaluation of *Agrobacterium rhizogenes* mediated hairy root induction on *Stevia rebaudiana* L. Bertoni

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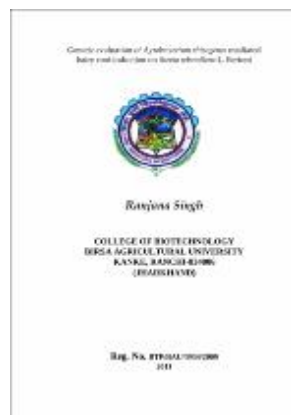
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